

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application No.	:	10/726,341	Confirmation No.: 9027
Appellants	:	Philip C. Georgeau, et al.	
Filed	:	December 3, 2003	
TC/A.U.	:	3633	
Examiner	:	Jeanette E. Chapman	
Docket No.	:	CHE020 P304A	
Title	:	ROOFING SYSTEM AND METHOD	

APPEAL BRIEF (37 C.F.R. § 41.37(a))

Dear Sir:

This brief is in furtherance of the Notice of Appeal filed in this case on December 17, 2010.

Please charge Deposit Account No. 16 2463 for the balance of \$15 for the fee required under § 41.20(b)(2) (\$270 current appeal brief fee less \$255 paid for appeal brief on June 30, 2008). An extension for a period of one month in which to file an Appeal Brief is being filed concurrently herewith. If any additional fee is required, Appellants request that the fee(s) be charged to Deposit Account No. 16 2463.

This brief contains these items under the following headings, and in the order set forth below (37 C.F.R. § 41.37(c)(1)):

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2. U.S. Patent No. 3,971,184 Issued to Van Wagoner.
3. U.S. Patent No. 6,579,924 Issued to Georgeau et al.
4. U.S. Patent No. 6,742,313 Issued to Ritland et al.
5. U.S. Patent No. 4,719,723 Issued to Van Wagoner.
6. U.S. Patent No. 5,447,006 Issued to Zenor.

B. Legal Considerations

1. The rejection of claim 4 under 35. U.S.C. § 112, second paragraph.
2. The rejection of claims 1-3, 5-6 and 8-9 under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt '803 in view of Van Wagoner '184 and further in view of Georgeau '924.
 - a. Claims 1-3
 - b. Claims 5 and 6
 - c. Claims 8 and 9
3. The rejection of claims 4 and 7 under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt '803 in view of Van Wagoner '184, and further in view of Georgeau '924 and Zenor '006.
 - a. Claim 4
 - b. Claim 7

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 - a. Claims 10-12
 - b. Claim 13
5. The rejection of claim 15 under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt '803 in view of Van Wagoner '184, and further in view of Georgeau '924 and Van Wagoner '723.
6. The rejection of claims 17-18 as being unpatentable over Karrfalt '803 in view of Van Wagoner '184, and further in view of Ritland '313.
 - a. Claims 17-18
7. The rejection of claims 19-20 under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt '803 in view of Van Wagoner '184 and further in view of Ritland '313 and Georgeau '924.
 - a. Claims 19-20
8. The rejection of claims 21-22 under 35 U.S.C. § 102(b) as being anticipated by Karrfalt '803.
 - a. Claims 21-22
9. The rejection of claims 26-27 under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt '803 in view of Ritland '313.
 - a. Claims 26-27

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VIII. Appendix of Claims Involved in the Appeal

IX. Evidence Appendix

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I. Real Party in Interest

The real party in interest in this application is Chem Link, Inc., a Michigan Corporation.

II. Related Appeals and Interferences

Appellants are aware of no other appeals or interferences that would directly affect or be directly affected by, or have a bearing on, the Board's decision in the pending appeal.

III. Status of Claims

Claims 1-27 are pending in the application. Claims 1-15, 17-22, and 26-27 are rejected. Claim 16 has been allowed, and claims 23-25 have been indicated to be allowable if written in independent form including the base claim and any intervening claims. This is an appeal of the rejection of claims 1-15 and 17-27.

IV. Status of Amendments

All amendments filed in this application are believed to have been entered.

V. Summary of Claimed Subject Matter

The present invention relates to a non-hazardous, environmentally friendly roof structure 2 (page 4, line 2) (Figs. 1 and 2) that may include a metal deck 3 (page 4, line 2) and a roof substrate such as a layer of insulation 4 (page 4, line 3). A moisture curing adhesive, such as a non-volatile polyether-based adhesive, is disposed on a portion of a first side 8 (page 4, line 5) of waterproof membrane 5 (page 4, line 3).

As discussed at page 4, lines 24-30, the adhesive has sufficient viscosity to form beads 11. The viscosity is preferably about 200,000 to 300,000 centipoise.

As discussed at page 4, line 17 – page 5, line 2, the moisture curing adhesive does not generate toxic vapors, and also does not require immediate application of the membrane as with existing two-part polyurethane foam sprayed systems. Furthermore, this adhesive can be used at temperatures below 40°, and it is not adversely affected by wind or the like during application. The adhesive develops tensile strength of about 200 lbs. per square foot, and therefore provides a

very strong bond between the membrane 5 (page 4, line 3) and the roof the substrate 4 (page 5, line 1).

As discussed at page 8, lines 18-29, the moisture curing adhesive may also be utilized to bond insulation board to a fluted steel deck, and fiberglass reinforced gypsum board may be bonded to the insulation board utilizing the moisture curing adhesive. A waterproof membrane may then be bonded to the gypsum board using moisture curing adhesive. Test results show that this roof construction substantially exceeds roofing industry standards, and it provides a substantial improvement over prior polyurethane foam roof adhesive systems.

1. Independent Claim 1

One aspect of the invention, as recited in independent claim 1, is a roof deck structure 1 (page 4, line 1) for covering a roof substrate 4 (page 5, line 1). The roof structure includes a roof substrate 4 (page 5, line 1) having a sloped upper surface. A waterproof membrane 5 (page 4, line 3) has an upper side and a lower side that is substantially free of fleece material. The roof structure further includes moisture curing substantially non-volatile adhesive 7 (page 4, line 6) comprising a silyl-terminated polymer disposed on at least a portion of the lower side of the waterproof membrane 5 (page 4, line 3) in contact with the upper surface of the roof substrate 4 (page 5, line 1) and bonding the waterproof membrane 5 (page 4, line 3) to the roof substrate 4 (page 5, line 1) to define a portion of a low slope roof structure 2 (page 4, line 2) of a building structure. As discussed at page 4, lines 24-30, the adhesive 7 (page 4, line 6) has sufficient viscosity to form beads 11 (page 5, line 10) on the sloped upper surface (see also page 6, line 7).

2. Independent Claim 5

Claim 5 recites a roof deck structure 1 (page 4, line 1) including a rigid low slope roof structure 2 (page 4, line 2) adapted to be supported at least in part by the walls of a building. The low slope roof structure 2 (page 4, line 2) has a roof substrate 4 (page 5, line 1) defining a sloped

upper surface. A waterproof membrane 5 (page 4, line 3) has an upper side and a lower side. Moisture curing silyl-terminated polymer based adhesive 7 (page 4, line 6) is disposed on at least a portion of the lower side of the waterproof membrane 5 (page 4, line 3) in contact with the upper surface of the roof substrate 4 (page 5, line 1), and bonding the waterproof membrane 5 (page 4, line 3) to the upper surface of the roof substrate 4 (page 5, line 1). The adhesive 7 (page 4, line 6) has sufficient viscosity to form beads 11 (page 5, line 10) upon extrusion (page 5, line 9) of the adhesive 7 (page 4, line 6) onto the sloped upper surface of the roof substrate 4 (page 5, line 1).

3. Dependent Claim 7

Claim 7 depends from claim 5, and recites that the waterproof membrane 5 (page 4, line 3) comprises a layer EPDM rubber that does not include fleece backing material.

4. Independent Claim 8

Independent claim 8 recites a roof deck structure 1 (page 4, line 1) including a rigid low slope roof structure 2 (page 4, line 2) including a roof substrate 4 (page 5, line 1) having a sloped upper surface. A waterproof flexible membrane 5 (page 4, line 3) covers the roof substrate 4 (page 5, line 1), and defines a lower surface. A moisture curing substantially non-volatile adhesive 7 (page 4, line 6) comprising a silyl-terminated polymer is in contact with the upper surface of the roof substrate 4 (page 5, line 1) and the lower surface of the flexible membrane 5 (page 4, line 3) to thereby bond the flexible membrane 5 (page 4, line 3) to the roof substrate 4 (page 5, line 1).

5. Dependent Claim 10

Claim 10 depends from claim 9. Claim 9 recites that the adhesive 7 (page 4, line 6) comprises a silyl-terminated polyether based adhesive, and claim 10 recites that the flexible membrane 5 (page 4, line 3) includes a layer of fleece mating 6 (page 4, line 4) on one side.

Claim 10 further recites that at least a portion of adhesive 7 (page 4, line 6) is disposed in the fleece 6 (page 4, lines 4-5).

6. Dependent Claim 13

Claim 13 depends from independent claim 8, and recites that the flexible membrane 5 (page 4, line 3) is bonded to the roof substrate 4 (page 5, line 1) and has a bond strength of at least one hundred sixty-five pounds per square foot (page 8, line 27).

7. Dependent Claim 15

Claim 15 depends from claim 8, and recites that the roof substrate 4 (page 5, line 1) comprises fiberglass reinforced gypsum board (page 8, line 22).

8. Independent Claim 17

Claim 17 recites a roof deck structure 1 (page 4, line 1) including a rigid low slope roof structure 2 (page 4, line 2) including foam insulation 4 (page 4, line 3) forming a roof substrate. A waterproof flexible membrane 5 (page 4, line 3) covers the roof substrate 4 (page 5, line 1). A moisture curing substantially non-volatile adhesive 7 (page 4, line 6) is disposed between the roof substrate 4 (page 5, line 1) and the flexible membrane 5 (page 4, line 3) to thereby bond the flexible membrane 5 (page 4, line 3) to the roof substrate 4 (page 5, line 1). The roof deck structure further includes a fluted steel deck 3 (page 4, line 2) below the foam insulation 4 (page 4, line 3), and moisture curing adhesive 7 (page 4, line 6) bonding the foam insulation 4 (page 4, line 3) to the steel deck 3 (page 4, line 2) without the use of mechanical fasteners.

9. Independent Claim 19

Claim 19 depends from claim 18, and recites that the adhesive 7 (page 4, line 6) includes a silyl-terminated polymer.

10. Independent Claim 21

Independent claim 21 recites a roof deck structure 1 (page 4, line 1) including fluted steel deck 3 (page 4, line 2) having a plurality of elongated upper deck surfaces. A substantially rigid panel (page 8, line 20) is disposed on the steel deck 3 (page 4, line 2). The panel defines upper and lower surfaces. Moisture-curing adhesive 7 (page 4, line 6) is disposed between the steel deck 3 (page 4, line 2) and the substantially rigid panel in contact with the upper deck surfaces and the lower surface of the substantially rigid panel (page 8, lines 20-21). A flexible waterproof membrane 5 (page 4, line 3) is disposed above the substantially rigid panel (page 8, line 20).

11. Dependent Claim 26

Claim 26 depends from claim 21, and recites that the waterproof membrane 5 (page 4, line 3) comprises a fleece-backed material (page 4, line 11).

12. Dependent Claim 27

Claim 27 depends from claim 21, and recites that the waterproof membrane 5 (page 4, line 3) comprises a fleece-backed PVC material (page 4, line 16).

VI. Grounds of Rejection to be Reviewed on Appeal

1. Claim 14 stands rejected under 35 U.S.C. §112, second paragraph, as being indefinite.
2. Claims 1-3, 5-6 and 8-9 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996,803, in view of Van Wagoner, U.S. Patent No. 3,971,723, and further in view of Georgeau, U.S. Patent No. 6,579,924.
3. Claims 4 and 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996,803, in view of Van Wagoner, U.S. Patent

No. 3,971,184, and further in view of Georgeau, U.S. Patent No. 6,579,924 and Zenor, U.S. Patent No. 5,447,006.

4. Claims 10-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996,803, in view of Van Wagoner, U.S. Patent No. 3,971,184, and further in view of Georgeau, U.S. Patent No. 6,579,924.
5. Claim 15 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996,803, in view of Van Wagoner, U.S. Patent No. 3,971,184, and further in view of Van Wagoner U.S. Patent No. 4,719,723.
6. Claims 17-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996,803, in view of Van Wagoner, U.S. Patent No. 3,971,184, and further in view of Ritland, U.S. Patent No. 6,742,313.
7. Claims 19-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over being unpatentable over Karrfalt, U.S. Patent No. 4,996,803, in view of Van Wagoner, U.S. Patent No. 3,971,184, and further in view of Ritland, U.S. Patent No. 6,742,313 and Georgeau U.S. Patent No. 6,579,924.
8. Claims 21-22 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Karrfalt, U.S. Patent No. 4,996,803.
9. Claims 26-27 stand rejected under 35 U.S.C. § 103(a) as being obvious over Karrfalt, U.S. Patent No. 4,996,803 in view of Ritland, U.S. Patent No. 6,742,313.

VII. Argument

A. The References

1. U.S. Patent No. 4,996,803 in the name of Karrfalt et al.

Karrfalt '803 discloses a roofing system 1 (Figs. 1-4) including a roof deck 3, a plurality of insulation boards 2, and a flexible waterproof membrane 4 which covers boards 2. Roof system 1 includes a plurality of flexible tape pads 7 which are "preferably formed of

polyisobutylene.” (Column 4, lines 12-13). Karrfalt ‘803 states that “polyisobutylene, is a natural tacky compound, having pressure sensitive adhesive properties but may contain additives to further increase the tackiness thereof, if desired. Polyisobutylene is a solid adhesive which does not run, emit fumes, or pose a fire hazard.” (Column 4, lines 15-20). During installation, pads 7 are applied to the insulation boards 2, and the insulation boards 2 are pressed into place and bottom surfaces 9 of pads 7 securely adhere to ridges 6 of roof deck 3. At column 5, lines 2-5, Karrfalt ‘803 states that “[A]n elastomeric waterproof membrane 4 is placed over top a surface 14 of boards 2 and is securely attached to roof deck 3 independent of boards 2, by a plurality of mechanical fasteners, such as cap plates and screws 11 and 12, respectively (Figs. 2 and 3).”

A second embodiment 20 of Karrfalt ‘803 (Figs. 5-7) includes a pair of flexible tape strips 22 that are also preferably formed with polyisobutylene or butyl rubber in 6 inch X 8 foot strips. At column 5, lines 56-59, Karrfalt ‘803 states that “Subsequent to securing insulation boards 2 to roof deck 3, elastomer waterproof membrane 4 is placed over boards 2 and is securely attached to the insulation boards by any suitable adhesive.”

2. U.S. Patent No. 3,971,184 in the name of Van Wagoner.

Van Wagoner ‘184 discloses a building structure 10 and a roofing deck 16 that is “provided with a conventional pitch to facilitate water shedding. Although not specifically depicted in Fig. 1, a large percentage of commercial buildings such as hospitals, schools, factories, stores, and the like, are designed with a substantially horizontal roofing surface. The subject invention also finds particular utility with such horizontal surfaces.” (Column 5, lines 19-26). Roof deck or substructure 16 (Fig. 3) is fitted with an array 22 of insulated water and impermeable roofing panels 24.

3. U.S. Patent No. 6,579,924 in the name of Georgeau.

Georgeau ‘924 discloses a pitch pocket and sealant. As discussed at column 1, lines 16-24, to seal penetrations of a low slope roof, a pitch pocket or pan surrounding the penetrating

element is used, and a sealant is poured into the pitch pocket or pan around the penetrating element. The pourable sealer of Georgeau '924 may include silyl-terminated polyether (column 4, line 9). A hygroscopic plasticizer can be added to the one-part moisture curable, pourable sealer composition to allow moisture to be imbibed into the material. At column 5, lines 24-25, Georgeau '924 indicates that the moisture curable sealer may be used for sealing a roof penetration by dispensing the pourable sealer into a pitch pan formed around a roof member. At column 5, lines 29-32, Georgeau '924 states that "a pitch pan is any type of continuous wall or curve formed around a roof penetration through a water proof membrane covering a roof substrate, and into which a sealer composition is dispensed to provide a water-permeable barrier." Examples of one-part moisture curable, sealant composition are given at column 5, line 39 – column 6, line 13.

4. U.S. Patent No. 5,447,006 in the name of Zenor.

Zenor '006 discloses a method for patching a single ply roof utilizing an NMP (N-methyl-2-pyrrolidone) solvent activator to bond a patch 12 (Fig. 3) to the upper (exposed) surfaces of existing roof membranes 34 and 36. At column 1, lines 18-25, Zenor '006 states that "[t]he sheets which form the membrane are secured to the insulation and the underlying roof deck at spaced locations by fastener assemblies which are spaced along the margins of the sheet. Each fastener assembly comprises a washer-like disc made of plastic or metal and further comprises a screw adapted to thread into the roof deck to cause the disc to clamp the membrane downwardly against the insulation. Roofs of this type are known as single ply roofs." (Emphasis added). At column 3, lines 19-28, Zenor '006 states "[t]his roof system is comprised of a roof deck 30, a layer of insulation 32, a first sheet of flexible roof membrane 34 and a second sheet of roof membrane 36 overlapping membrane 34 and secured thereto using an adhesive 38 or a known hot-air welding method or any other known suitable sealing method or material. Typically known fasteners are used on known centers, preferably with known sealants to secure the single ply membrane to the deck as required." (Emphasis

added). At column 4, lines 1-5, Zenor '006 discloses that the method includes wiping a coating of NMP solvent activator onto the cleaned upper surface 26 (or surfaces) that are to be seamed together.

5. U.S Patent No. 6,742,313 in the name of Ritland.

Ritland '313 discloses a roof substrate 10 (Fig. 3) which may include a metal decking 12 and a layer of insulated foam 14. A roof membrane 20 includes an upper flexible rubber sheet 22 and a non-woven polyester fleece-like layer 24 secured to the underside of the rubber sheet 22. At column 3, lines 38-43, Ritland '313 states that "Preferably, the flexible rubber sheet 22 is made of thermoplastic olefin (TPO) rubber. Alternatively, the flexible rubber sheet 22 may be made of other appropriate materials, such as ethylene propylene diene monomer (EPDM) rubber." During assembly, a layer of non-cellular adhesive material 16 in liquid form is applied. At column 3, lines 10-17, Ritland '313 states that "in accordance with the preferred embodiment of the present invention, a two-component non-cellular Polyurea polyurethane adhesive material is used, that includes a mixture of component A, preferably diisocyanate, and component B, preferably polyol. Referring to Fig. 1, it will be seen that uses made of a conventional two-component spray gun apparatus 18 for this purpose."

6. U.S. Patent No. 4,719,723 in the name of Van Wagoner.

Van Wagoner '723 discloses a membrane roofing system including a roofing membrane 26 (Fig. 1) on a concrete roof deck 16 as positioned both below a drainage course 42 and insulation panels 40. At column 7, lines 47-54, Van Wagoner '723 states that a moisture vapor barrier 44 "may be adhered between the drainage board 42 and the closed cell insulation 46 by conventional adhesive compositions." At column 4, lines 58-61, Van Wagoner '723 states that "[a]n external layer of aggregate, pavers or similar ballast is deposited on top of the insulation course of the panels to maintain the panels in position." At column 6, lines 20-27, Van Wagoner '723 states that:

A water impermeable roofing membrane 26 has been applied to the roof or deck surface 16 by a conventional technique such as multiple applications of felt paper and hot melt bituminous compound as outlined above or an elasto/plastic single ply membrane such as modified bituminous membranes, polyvinyl chloride, ethylene propylene diene monomer, etc.

B. Legal Considerations

Claim 14 has been rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Appellants regard as the invention; claims 1-3, 5-6, and 8-9 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996,803, in view of Van Wagoner, U.S. Patent No. 3,971,184, and Georgeau et al., U.S. Patent No. 6,579,924; claims 4 and 7 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996, 803 in view of Van Wagoner, U.S. Patent No. 3,971,184, and further in view of Georgeau et al., U.S. Patent No. 6,579,924 and Zenor, U.S. Patent No. 5,447,006; claims 10-13 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996, 803 in view of Van Wagoner, U.S. Patent No. 3,971,184, and further in view of Georgeau et al., U.S. Patent No. 6,579,924, and Ritland, U.S. Patent No. 6,742,313; claim 15 has been rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996, 803 in view of Van Wagoner, U.S. Patent No. 3,971,184, and further in view of Georgeau et al., U.S. Patent No. 6,579,924, and Van Wagoner, U.S. Patent No. 4,719,723; claims 17-18 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996, 803 in view of Van Wagoner, U.S. Patent No. 3,971,184, and further in view of Ritland, U.S. Patent No. 6,742,313; claims 19-20 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996, 803 in view of Van Wagoner, U.S. Patent No. 3,971,184, in further in view of Ritland, U.S. Patent No. 6,742,313, and in further view of Georgeau et al. U.S. Patent No. 6,579,924; claims 21-22 have been rejected under 35 U.S.C. § 102(b) as being anticipated by Karrfalt, U.S. Patent No. 4,996,803; and claims 26-27 have been

rejected under 35 U.S.C. § 103(a) as being unpatentable by Karrfalt, U.S. Patent No. 4,996, 803 in view of Ritland, U.S. Patent No. 6,742,313.

With respect to obviousness, in proceedings before the Patent and Trademark Office the Examiner bears the burden of establishing a *prima facie* case of obviousness based upon the prior art. MPEP 2142; *In re Fritch*, 23 USPQ 2d 1780, 1783 (Fed. Cir. 1992). Appellants respectfully assert that the Examiner has not yet met her burden of establishing a *prima facie* case of obviousness with respect to the rejected claims.

In rejecting claims under 35 U.S.C. §103, it is incumbent upon the Examiner to establish a factual basis to support the legal conclusion of obviousness. *See In re Fine*, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the Examiner must make the factual determinations set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), *viz.*, (1) the scope and content of the prior art; (2) the differences between the prior art and the claims at issue; and (3) the level of ordinary skill in the art.

Furthermore, “Rejections on obviousness grounds cannot be sustained by mere conclusory statements; instead there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” *KSR Int’l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007) (quoting *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006)). Also, “[A] patent composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR* at 1741. Obviousness is then determined on the basis of the evidence as a whole and the relative persuasiveness of the arguments. *See Oetiker*, 977 F.2d at 1445, 24 USPQ2d at 1444; *Piasecki*, 745 F.2d at 1472, 223 USPQ at 788.

Also, “[i]t is impermissible within the framework of §103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” *In re Wesslau*, 353 F.2d 238, 241, 147 USPQ 391, 393 (CCPA 1965); see also *In re Mercier*, 515 F.2d 1161, 1165-66, 185 USPQ 774,778 (CCPA 1975). In

a recent case (after *KSR*), the Court of Appeals for the Federal Circuit confirmed that it is improper to “pick and choose” certain elements from the prior art, stating that “[i]n addressing the question of obviousness a judge must not pick and choose isolated elements from the prior art and combine them so as to yield the invention in question if such a combination would not have been obvious at the time of the invention.” *Abbott Laboratories v. Sandoz, Inc.* 544 F.3d 1341 (Fed. Cir. 2008) (citing *Dennison Mfg. Co. v. Panduit Corp.*, 475 U.S. 809, 106 S. Ct. 1578, 89 L.Ed.2d 817 (1986)).

1. Claim 14 stands rejected under 35 U.S.C. § 112, second paragraph, as being indefinite.

At page 3, the Office Action dated August 17, 2010, states that “‘...**claim 14 recites the adhesive has a viscosity prior to curing of about 200,000 to 300,000 centipoise.**’ The unit of measurement ‘centipoise’ cannot be found in the common science manuals; therefore the claim is indefinite and has no clear meaning” (emphasis in original).

According to *The Condensed Chemical Dictionary* 212 (Gessner G. Hawley ed., 10th ed. 1981), a centipoise is “one one-hundredth of a poise. The poise is the metric system unit of viscosity, and has the dimensions of dyne-second per square centimeter or grams per centimeter-second.”

The poise is a well-known unit of viscosity. For example, *Merriam-Webster’s Collegiate Dictionary* (11th ed. 2004) defines the poise as “a centimeter-gram-second unit of viscosity equal to the viscosity of a fluid that would require a shearing force of one dyne to impart to a one-square-centimeter area of an arbitrary layer of the fluid a velocity of one centimeter per second relative to another layer separated from the first by a distance of one centimeter.”

Clearly, the term “centipoises” is very definite, and it does clearly point out and distinctly claim the subject matter Appellants regard as the invention. Accordingly, Appellants

respectfully assert that the rejection of claim 14 as being indefinite is in error, and should be reversed.

2. **Claims 1-3 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996,803, in view of Van Wagoner, U.S. Patent No. 3,971,184, and Georgeau et al., U.S. Patent No. 6,579,924.**

a. **Claims 1-3**

As discussed above, independent claim 1 recites a roof structure including “moisture curing substantially non-volatile adhesive comprising a silyl-terminated polymer” that is disposed on at least a portion of a lower side of a waterproof membrane in contact with an upper surface of a roof substrate and bonding the waterproof membrane to the roof substrate. Claim 1 also recites that “the adhesive has sufficient viscosity to form beads on the sloped roof substrate upon extrusion of the adhesive onto the sloped upper surface of the roof substrate.”

The Office Action dated August 17, 2010, states that “Georgeau discloses moisture curing substantially non-volatile adhesive comprising a silyl-terminated polymer capable of being disposed on at least a portion of said lower side of said waterproof membrane and in contact with said upper surface of said roof substrate and bonding said waterproof membrane to said roof substrate to define a portion of a roof of a building structure, wherein the adhesive has sufficient viscosity to form beads on the sloped roof substrate (emphasis added) upon extrusion of the adhesive onto the sloped upper surface of the roof substrate.

As an initial matter, Appellants respectfully assert that the evidence of record does not show that the pourable sealable of Georgeau ‘924 is actually “capable of ... bonding said waterproof membrane to said roof substrate” as asserted in the Office Action. Appellants have reviewed the cited portion of Georgeau ‘924 (column 2, line 30 – column 5, line 35), and finds no disclosure of an adhesive that bonds a waterproof membrane to a roof substrate. Rather, Georgeau ‘924 is actually directed to a completely different problem, namely, sealing penetrations through roofs utilizing a pourable sealant. The pourable sealant of Georgeau ‘924

is “particularly useful as sealants, especially as a sealer composition for forming a seal around a roof penetration. When used as a sealer for a roof penetration, the composition is disposed into to (sic, should be a) pitch pan formed around a roof member.” (column 5, lines 25-29). At column 1, lines 21-24, Georgeau ‘924 states that preferred pitch pockets are described in U.S. Patent Nos. 5,493,827 and 5,768,838. With reference to Fig. 6 of the Georgeau ‘827 patent, membrane 64 is cut at 66 to allow the penetrating member to pass through, and the membrane is bonded in place to insulation 62 leaving small flaps projecting up around the penetration and, hence into the pan. “Gaps between the penetration and adjacent material are sealed with adhesive. The adhesive prevents liquid sealant from draining out of the pan through the cut membrane.” (column 4, lines 2-9). Georgeau ‘838 similarly states that membrane 21 (Fig. 6) is cut, and gaps between the penetration in adjacent material are sealed with an adhesive at column 5, lines 5-12. Thus, it is clear that the pourable sealant of Georgeau ‘924, when poured into a pitch pocket, is disposed entirely on the upper side of a roof membrane, and the sealant does not bond the waterproof membrane to the substrate. Furthermore, the pourable sealant is not disposed between the roof membrane and the roof substrate. Thus, Georgeau ‘924 itself is not directed to solving problems associated with adhering membranes to roof substrates, and there would be no reason to select Georgeau ‘924 to modify Karrfalt ‘803, at least absent knowledge of Appellants’ claimed invention.

Even if the pourable sealant of Georgeau ‘924 were “capable of” being used to modify Karrfalt ‘803 in the manner suggested in the subject Office Action, this would not establish that such modification would have been obvious. “The mere fact that references can be combined or modified does not render the resultant combination obvious unless the results would have been predictable to one of ordinary skill in the art.” MPEP 2143.01, *citing KSR Int’l Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1731, 82 USPQ2d 1385, 1396 (2007).

Appellants further assert that the stated reason for modifying Karrfalt ‘803 in view of Georgeau ‘924 does not meet the “articulated reasoning with some rational underpinning” requirement set forth in *KSR, supra*. At page 4, the Office Action states that “It would have

been obvious to modify Karrfalt in view of Georgeau *in order to provide an effective seal around and to the roof substrate as taught by Georgeau*. Further it would have been obvious to use the roof of Karrfalt on a sloped or pitched roof to facilitate water run-off on the roof as shown by Van Wagoner.” (Emphasis added). Georgeau ‘924 actually teaches pouring sealant into a pitch pan on top of a roof membrane. If Karrfalt ‘803 were to be modified “as taught by Georgeau,” the result would be the roof structure of Karrfalt ‘803 with a penetration and pitch pocket as taught by Georgeau ‘924. “It is impermissible within the framework of §103 to pick and choose from any one reference only so much of it as will support a given position, to the exclusion of other parts necessary to the full appreciation of what such reference fairly suggests to one of ordinary skill in the art.” *In re Wesslau*, 353 F.2d 238, 241, 147 USPQ 391, 393 (CCPA 1965); *see also In re Mercier*, 515 F.2d 1161, 1165-66, 185 USPQ 774, 778 (CCPA 1975). In a recent case (after *KSR*), the Court of Appeals for the Federal Circuit confirmed that it is improper to “pick and choose” certain elements from the prior art, stating that “[i]n addressing the question of obviousness a judge must not pick and choose isolated elements from the prior art and combine them so as to yield the invention in question if such a combination would not have been obvious at the time of the invention.” *Abbott Labs. v. Sandoz, Inc.* 544 F.3d 1341 (Fed. Cir. 2008), *citing Dennison Mfg. Co. v. Panduit Corp.*, 475 U.S. 809, 106 S. Ct. 1578, 89 L.Ed.2d 817 (1986). Absent knowledge of Appellants’ claimed invention, there would be no reason to utilize the pourable sealant of Georgeau ‘924 to adhere the roof membrane of Karrfalt ‘803.

Furthermore, Appellants respectfully assert that Georgeau ‘924 does not disclose an adhesive having a “sufficient viscosity to form beads on the sloped roof substrate” as recited in claim 1. Georgeau ‘924 discloses a “one-part, moisture curable, pourable sealer” composition (column 2, line 30). At column 1, lines 6-8, Georgeau ‘924 states that “this invention relates to a one-part moisture curable pourable sealer composition, and more particularly to a one-part moisture curable, pourable sealer composition that achieves fast, deep decuring.” At column 1, lines 12-15, Georgeau ‘924 states that “a particular application for a one-part moisture curable,

pourable sealer composition that achieves fast, deep curing is in the field of sealing mechanical penetrations in a waterproof membrane covering a roof substrate.” At column 1, lines 18-24, Georgeau ‘924 states that “generally, a pitch pocket or pan which surrounds the penetrating element is used...a sealant is poured into the pitch pocket or pan around the penetrating element.” At column 1, lines 58-63, Georgeau ‘924 states that “one-part moisture curable urethanes have also been used. Although one-part moisture curable urethanes are thermosetting, known one-part urethane sealants are capable of only shallow cures, usually less than $\frac{3}{8}$ inch deep. Deeper cures of at least 2 inches are desired. Inadequate depth of cure can result in splitting and cracking of the seal.” Thus, Georgeau ‘924 is directed to solving the problems associated with pourable sealants used to seal penetrations in roofs by providing “fast, deep curing without shrinkage” (column 6, lines 14-15).

Clearly, a “pourable sealer” is not an adhesive that has “sufficient viscosity to form beads on the sloped roof substrate upon extrusion of the adhesive” as recited in claim 1. Appellants note that “To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” MPEP 2112(IV), *citing In re Robertson*, 169 F.3d 743, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (quoting *Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991)) (emphasis added). As noted above, in proceedings before the Patent and Trademark Office, the Examiner bears the burden of establishing a *prima facie* case of obviousness based on the prior art. *In re Fritch, supra*. There is no evidence of record showing that the pourable sealant of Georgeau ‘924 is an “adhesive that has sufficient viscosity to form beads on the sloped roof structure upon extrusion of the adhesive” as recited in claim 1.

Appellants further assert that it is not at all clear that the pourable sealant of Georgeau ‘924 could be used for its intended purpose if it were to be modified to have “sufficient

viscosity to form beads the low sloped roof structure” as recited in claim 1. “If the proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.” MPEP 2143.01, *citing In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984).

The present invention solves long-standing problems encountered in low-slope roof construction. As discussed at page 1, line 9 through page 2, line 16 of the present application, wind acting on a building structure may cause a substantial uplift force acting on a roof membrane. This can cause the roof membrane to separate from the roof substrate, resulting in costly damage to buildings and the valuables in the buildings. Furthermore, some material and adhesive combinations do not provide a sufficient adhesive bond. It cannot be assumed that any given sealant or adhesive will provide an adequate adhesive bond with any material or combination of materials. For example, as stated at column 1, lines 39-42 of Venable, U.S. Patent No. 4,996,812 (cited in the Office Action dated September 6, 2007), “it is very difficult to properly bond the EPDM rubber directly with an adhesive, and accordingly the resultant roof is subject to wind uplifts.” (Emphasis added). Providing a non-hazardous, environmentally friendly adhesive/roof structure that is also capable of meeting wind uplift requirements has been a long-standing problem that has not heretofore been solved. Clearly, providing a roofing structure that works for its intended purpose requires more than simply utilizing a patent claim as a template to pick and choose the features from the prior art that are required to meet claim limitations without regard for the actual teachings of the prior art when the prior art is properly considered in its entirety, taking into account the large number of factors affecting adhesive bond strength for various construction materials. “A prior art reference must be considered in its entirety, i.e., as a whole, including portions that would lead away from the claimed invention.” MPEP 2141.02, *citing W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984).

Also, there is no evidence of record establishing that the pourable sealant of Georgeau '924 would provide an adequate adhesive bond if utilized in the Karrfalt '803 roofing system, even if it were to be attempted. In order to render a later invention unpatentable for obviousness, the prior art must enable one skilled in the art to make and use the later invention. *In re Kumar*, 418 F.3d 1361, 76 USPQ2d 1048 (Fed. Cir. 2005). As discussed above, Georgeau '924 discloses a pourable sealant that is poured into a pitch pocket around a penetrating element on top of a roof membrane. The subject Office Action does not specify how Georgeau '924 would be combined with Karrfalt '803. For example, it is unclear if Georgeau '924 would be poured onto the top of the membrane as taught by Georgeau '924, or if some other unspecified method of application would be utilized. If the pourable sealant of Georgeau '924 were to be poured onto the insulation boards 2 of Karrfalt '803 after modifying Karrfalt '803 to be sloped to "facilitate water run-off on the roof as shown by Van Wagoner." See page 4 of the Office Action dated August 17, 2010. It is quite possible that the pourable sealant would simply runoff the insulation boards of Karrfalt '803. Appellants reiterate that the burden of establishing a *prima facie* case of obviousness falls on the Examiner. Appellants are not required to demonstrate that modification of the prior art in some hypothetical manner would be impossible.

b. Claims 5-6

As discussed above, independent claim 5 recites a roof deck structure including a rigid low slope roof structure and a waterproof membrane having upper and lower sides. Independent claim 5 also recites a "moisture curing silyl-terminated polymer based adhesive" that "has sufficient viscosity to form beads on the sloped roof substrate upon extrusion of the adhesive onto the slopped upper surface of the substrate." These portions of independent claim 5 are substantially similar to the corresponding portions of independent claim 1. Accordingly, the arguments above with respect to the rejection of independent claim 1 are incorporated with respect to independent claim 5. Appellants reiterate that Georgeau '924 discloses a pourable sealant that is disposed on top of a roof membrane when used in its intended manner. Thus,

there would be no reason to select the pourable sealant of Georgeau '924 for use in Karrfalt '803, at least absent knowledge of Appellants' claimed invention. Rather, one skilled in the art would simply select an adhesive as disclosed in Ritland '313 or Venable '812 that is specifically directed to the problems associated with adhering roof membranes to roof substrates. Still further, as also discussed above, is not at all clear that the pourable sealant of Georgeau '924 would provide the necessary adhesion even if Georgeau '924 were to be combined with Karrfalt '803. Thus, the cited prior art is not enabling with respect to the claimed roof deck structure. *In re Kumar, supra*.

c. Claims 8-9

Independent claim 8 recites a roof deck structure including a waterproof flexible membrane covering a roof substrate, and a "moisture curing substantially non-volatile adhesive comprising a silyl-terminated polymer in contact with the upper surface of the roof substrate and the lower surface of the flexible membrane to thereby bond the flexible membrane to the roof substrate." Appellants incorporate the arguments with respect to the non-obviousness of combining Karrfalt '803, Van Wagoner '184, and Georgeau '924 discussed above in connection with independent claims 1 and 5. Appellants reiterate that one skilled in the art, absent knowledge of Appellants' claimed invention, would simply select an adhesive for bonding roof membranes as taught by, for example, Venable U.S. Patent No. 4,996,812. Absent knowledge of Appellants' claimed invention, there would be no reason to select a pourable sealant that is poured into a pitch pan on top of a roof membrane as disclosed in Georgeau '924. Furthermore, it is not all clear that Georgeau '924 could be successfully combined with Karrfalt '803 in the manner proposed, and the prior art is therefore not enabling with respect to the claimed invention.

- 3. Claims 4 and 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996, 803 in view of Van Wagoner, U.S. Patent No. 3,971,184, and further in view of Georgeau et al., U.S. Patent No. 6,579,924 and Zenor, U.S. Patent No. 5,447,006.**

As discussed above, claim 4 depends from claim 1, and claim 7 depends from claim 5. Thus, the rejection of claims 4 and 7 are believed to be improper for those reasons set forth above in connection with independent claims 1 and 5, respectively.

Also, claim 4 recites that the “waterproof membrane comprises a layer of EPDM rubber.” As discussed above, Venable, U.S. Patent 4,996,812 states that “it is very difficult to properly bond the EPDM rubber directly with an adhesive, and accordingly the resultant roof is subject to wind uplifts.” (column 1, lines 39-42) Appellants respectfully assert that one skilled in the art would not select EPDM rubber as taught by Zenor ‘006 absent knowledge of Appellants’ claimed invention. The prior art itself does not disclose any reason for such a combination, and provides no reason to think that such a combination would be successful, even if it were to be attempted.

Claim 7 depends from claim 5 and recites “said waterproof membrane comprising a later of EPDM rubber that does not include fleece backing material.” Appellants respectfully assert that one skilled in the art would not modify the cited references to arrive at the arrangement of claim 7 absent knowledge of Appellants’ claimed invention for those reasons set forth above in connection with dependent claim 4.

- 4. Claims 10-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996, 803 in view of Van Wagoner, U.S. Patent No. 3,971,184, and further in view of Georgeau et al., U.S. Patent No. 6,579,924, and Ritland, U.S. Patent No. 6,742,313.**

a. Claims 10-12

Claims 10-13 depend from independent claim 8, and the rejection of these claims is therefore believed to be improper for those reasons set forth above in connection with independent claim 8.

Furthermore, claim 10 recites “the flexible membrane includes a layer of fleece matting on one side; and wherein: at least a portion of the adhesive is disposed in the fleece.” As discussed above, a given adhesive will not necessarily provide an adequate bond when utilized with different materials. Appellants respectfully assert that one skilled in the art would not select the roof membrane 20 with fleece-like layer 24 of Ritland ‘313 for use in combination with the pourable sealer of Georgeau ‘924. The fleece material of Ritland ‘313 is utilized in combination with a two-part sprayable non-cellular polyurea polyurethane adhesive as discussed at column 3, lines 11-15 of Ritland ‘313. Appellants respectfully submit that one skilled in the art would simply utilize the adhesive taught by Ritland ‘313 with the fleece back roof membrane 20 of Ritland ‘313 as taught by Ritland ‘313 itself. Absent knowledge of Appellants’ claimed arrangement, there would be no reason to ignore the actual teachings of Ritland ‘313 and select the pourable sealant of Georgeau ‘924.

b. Claim 13

As discussed above, claim 13 depends from claim 8, and recites that “the flexible membrane is bonded to the roof substrate and has a bond strength of at least one hundred sixty-five pounds per square foot.” With respect to claim 13, the Office Action dated August 17, 2010, states that:

“Ritland discloses the roof deck structure of claim 8, wherein: the flexible membrane 20 is bonded to the roof substrate and has a bond strength of at least one hundred sixty-five pounds per square foot. See column 4, lines 54-66. It would have been obvious to one of ordinary skill in the art to impart the measurements/dimensions to the roof deck of Karrfalt in order to provide elements effectively secured together to provide a durable deck structure.”

Appellants respectfully assert that this is pure speculation. The prior art provides no reason to think that the pourable pitch pocket sealant of Georgeau '924 would actually provide a bond strength of at least one hundred sixty-five pounds per square foot as recited in claim 13.

Furthermore, Appellants have reviewed the cited portion of Ritland '313 and can find no disclosure of a flexible membrane that is bonded to a roof substrate "and has a bond strength of at least one hundred sixty-five pounds per square foot." More specifically, the cited portion of Ritland '313 states that the "above disclosed two component non-cellular polyurea polyurethane adhesive material has a high tensile strength and range of 1600 PSI...and provides the desired properties for application and roof construction, such as low viscosity for ease of application, fast initial cure to provide a sufficient level of bonding the membrane 18 to the roof substrate 10 so that the membranes 18 will stay in place, and show final cure to ensure that workmen have enough time to apply all membranes to the roof substrate." Thus, the cited portion of Ritland '313 actually discusses the tensile strength of the adhesive itself, not the bond strength. Given that the cited references themselves do not disclose the cited bond strength, the assertions in the subject Office Action are purely speculative, and not supported by the evidence of record.

5. Claim 15 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996, 803 in view of Van Wagoner, U.S. Patent No. 3,971,184, and further in view of Georgeau et al., U.S. Patent No. 6,579,924, and Van Wagoner, U.S. Patent No. 4,719,723.

As discussed above, claim 15 depends from claim 8 and recites that "the roof substrate comprises fiberglass reinforced gypsum board." Appellants respectfully assert that the rejection of claim 15 is improper for those reasons set forth above in connection with independent 8.

At page 9, the subject Office Action states that "Karrfalt discloses an insulation board which very readily could be said to by (sic) gypsum board but Van Wagoner '723 discloses the roof deck structure of claim 8, wherein: the roof substrate comprises fiberglass reinforced gypsum board. See column 8 lines 3-15. It would have been obvious to construct the insulation panel of

fiberglass reinforcement to increase its tensile strength.” Appellants have reviewed column 8, lines 3-15 of Van Wagoner ‘723, and can find no disclosure of a roof substrate that comprises “fiberglass reinforced gypsum board” as asserted in the Office Action. Appellants assert that there is no evidence of record showing that the membrane 4 of Karrfalt ‘803 would properly adhere to a fiberglass reinforced gypsum board even if such a modification were to be attempted.

6. Claims 17-18 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996, 803 in view of Van Wagoner, U.S. Patent No. 3,971,184, and further in view of Ritland, U.S. Patent No. 6,742,313.

As discussed above, independent claim 17 recites a roof deck structure including foam insulation that is bonded to a steel deck by a moisture curing adhesive, and a waterproof flexible membrane that is bonded to the foam insulation by moisture curing substantially non-volatile adhesive.

At page 10, the subject Office Action states that “Karrfalt discloses a moisture curing adhesive 22 bonding the foam insulation to the steel deck without the use of mechanical fasteners. See column 6, lines 8-21.” Appellants have carefully reviewed the cited portion of Karrfalt ‘803, and find no disclosure of a “moisture curing adhesive.” Karrfalt ‘803 actually recites “pads and strips...which secure the boards to a roof deck preferably are formed of flexible, solid, pressure sensitive adhesive polyisobutylene.” There is no evidence of record showing that the “pressure sensitive adhesive polyisobutylene” of Karrfalt ‘803 is a “moisture curing adhesive” as recited in independent claim 17. Appellants reiterate that “to establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’” MPEP 2112(IV), citing *In re Robertson*, 169 F.3d 743, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (quoting *Cont’l Can Co. v. Monsanto Co.*, 948 F.2d 1264, 20 USPQ2d 1746, 1749 (Fed. Cir.

1991)) (emphasis added).

Furthermore, Karrfalt '803 itself does not recognize any problems associated with the "pressure sensitive adhesive polyisobutylene" of Karrfalt '803. Thus, absent knowledge of the present invention, there would be no reason to modify Karrfalt '803 to include a different adhesive.

At page 10, the Office Action states that "Karrfalt lacks a moisture curing substantially non-volatile adhesive disposed between the roof substrate and the flexible membrane to thereby bond the flexible membrane to the roof substrate." However, the Office Action does not state what reference discloses such an adhesive, and the basis of the rejection of claim 17 is therefore unclear. As discussed above in connection with independent claim 1, Georgeau '924 discloses a pourable sealant that is poured into a pitch pocket on top of a roof membrane, and there would be no reason to combine Georgeau '924 with Karrfalt '803.

7. **Claims 19-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Karrfalt, U.S. Patent No. 4,996, 803 in view of Van Wagoner, U.S. Patent No. 3,971,184, in further in view of Ritland, U.S. Patent No. 6,742,313, and in further view of Georgeau et al. U.S. Patent No. 6,579,924.**

As discussed above, claim 19 depends from claim 18, and recites that "the adhesive includes a silyl-terminated polymer."

As discussed above in connection with independent claim 1, Georgeau '924 is directed to solving the problems associated with pourable sealants that are poured into a pitch pocket on top of a roof membrane. Absent knowledge of Appellants' claimed invention, one skilled in the art would be expected to simply chose a known adhesive as disclosed in, for example, Venable '812 or Ritland '313 when selecting an adhesive to adhere a waterproof membrane to a roofing substrate.

8. Claims 21-22 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Karrfalt, U.S. Patent No. 4,996,803.

As discussed above, independent claim 21 recites, among other features, a roof deck structure including “moisture-curing adhesive” that is disposed between a “steel deck” and a “substantially rigid panel.” The “moisture-curing adhesive” is “in contact with the upper deck surfaces and the lower surface of the substantially rigid panel.”

At page 11, the Office Action states that “Karrfalt discloses a moisture-curing adhesive 22 disposed between the steel deck and the substantially rigid panel in contact with the upper deck surfaces and the lower surface of the substantially rigid panel.” Appellants have reviewed Karrfalt ‘803, and can find no disclosure of a “moisture-curing adhesive” as recited in claim 21. At column 5, lines 19-22, Karrfalt ‘803 states that “Second embodiment 20 Figs. 5-7” of the present invention includes a pair of flexible tape strips 22 also preferably performed of polyisobutylene or butyl rubber in 6 inch × 8 foot strips (Fig. 5).” Appellants reiterate that “To establish inherency, the extrinsic evidence ‘must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.’” MPEP 2112(IV), citing *In re Robertson*, 169 F.3d 743, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (quoting *Cont’l Can Co. v. Monsanto Co.*, 948 F.2d 1264, 20 USPQ2d 1746, 1749 (Fed. Cir. 1991)) (emphasis added). There is no evidence of record showing that the “polyisobutylene or butyl rubber” of Karrfalt ‘803 constitutes a “moisture-curing adhesive” as recited in claim 21.

In proceedings before the Patent and Trademark Office, the Examiner bears the burden of establishing a prima facie case of anticipation based upon the prior art. *In re Sun*, 31 USPQ 2d 1451, 1453 (Fed. Cir. 1993) (unpublished). Given that there is no evidence of record showing that the quote “polyisobutylene or butyl rubber” of Karrfalt ‘803 is a “moisture-curing

adhesive” as recited in claim 21, Appellants respectfully asserts that the Examiner has not yet met her burden of establishing a *prima facie* case of anticipation with respect to the claims 21-22.

9. Claims 26-27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable by Karrfalt, U.S. Patent No. 4,996, 803 in view of Ritland, U.S. Patent No. 6,742,313.

a. Claim 26

Claim 26 depends from claim 21, and recites that “the waterproof membrane comprises a fleece-backed material.” At page 12, the subject Office Action states that “Ritland discloses the roof deck structure of claim 21, wherein: the waterproof membrane 20 comprises a fleece-backed 24 material. See motivation statement above.” However, it is unclear which “motivation statement” this refers to. For example, the subject Office Action does not recite any motivation or reason whatsoever to select Ritland for combination in rejecting claim 10. There is no motivation to combine the prior art in the manner asserted other than the bare fact that Appellants’ claim recites a “fleece-backed material.”

b. Claim 27

As discussed above, claim 27 depends from claim 21, and recites that the waterproof membrane comprises a fleece-backed PVC material.”

At page 12, the subject Office Action states that “Ritland discloses the roof deck structure of claim 21, wherein: the waterproof membrane 20 comprises a fleece-backed material.” However, the Office Action does not provide any reason whatsoever concerning a motivation to modify the prior art. In fact, the Office Action does not even specify that the prior art is actually being modified. Appellants note that “a patent composed of several elements is not proved obvious merely by demonstrating the each of its elements was, independently, known in the prior art.” KSR at 1741. Accordingly, the rejection of claim 27 is also believed to be improper.

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C. Conclusion


For the reasons set forth above, it is apparent that claims 1-15, 17-22, and 26-27 define patentable subject matter when the cited references are properly considered for what they actually disclose in their entirety.

Accordingly, reversal of the rejections of these claims under 35 U.S.C. § 102(b) and § 103(a) is respectfully solicited.

Respectfully submitted,

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Appendix of Claims (37 C.F.R. § 41.37(c))

1. A roof structure for covering a roof substrate, comprising:
 - a roof substrate having a sloped upper surface;
 - a waterproof membrane having an upper side and a lower side that is substantially free of fleece material;
 - a moisture curing substantially non-volatile adhesive comprising a silyl-terminated polymer disposed on at least a portion of said lower side of said waterproof membrane in contact with said upper surface of said roof substrate and bonding said waterproof membrane to said roof substrate to define a portion of a low slope roof of a building structure, wherein the adhesive has sufficient viscosity to form beads on the sloped roof substrate upon extrusion of the adhesive onto the sloped upper surface of the roof substrate.
2. The roof structure of claim 1, wherein:
 - said silyl-terminated polymer comprises a silyl-terminated polyether.
3. The roof structure of claim 1, wherein:
 - said waterproof membrane comprises a layer of PVC material.
4. The roof structure of claim 1, wherein:
 - said waterproof membrane comprises a layer of EPDM rubber.
5. A roof deck structure, comprising:

a rigid low slope roof structure adapted to be supported at least in part by the walls of a building, said low slope roof structure having a roof substrate defining a sloped upper surface;

a waterproof membrane having an upper side and a lower side;

a moisture curing silyl-terminated polymer based adhesive disposed on at least a portion of said lower side in contact with said upper surface of said roof substrate, and bonding said waterproof membrane to said upper surface of said roof substrate, wherein the adhesive has sufficient viscosity to form beads on the sloped roof substrate upon extrusion of the adhesive onto the sloped upper surface of the roof substrate.

6. The roof deck structure of claim 5, wherein:

said polymer comprises a silyl-terminated polyether.

7. The roof structure of claim 5, wherein:

said waterproof membrane comprises a layer of EPDM rubber that does not include fleece backing material.

8. A roof deck structure, comprising:

a rigid low slope roof structure including a roof substrate having a sloped upper surface;

a waterproof flexible membrane covering said roof substrate, and defining a lower surface;

a moisture curing substantially non-volatile adhesive comprising a silyl-terminated polymer in contact with the upper surface of the roof substrate and the lower surface of the flexible membrane to thereby bond the flexible membrane to the roof substrate.

9. The roof deck structure of claim 8, wherein:

the adhesive comprises a silyl-terminated polyether based adhesive.

10. The roof deck structure of claim 9, wherein:

the flexible membrane includes a layer of fleece matting on one side; and wherein:
at least a portion of the adhesive is disposed in the fleece.

11. The roof deck structure of claim 10, wherein:

the flexible membrane comprises a layer EDPM rubber having a thickness of about 0.040-0.070 inches thick.

12. The roof deck structure of claim 11, wherein:

the fleece matting has a thickness of about 0.040-0.080 inches.

13. The roof deck structure of claim 8, wherein:

the flexible membrane is bonded to the roof substrate and has a bond strength of at least one hundred sixty-five pounds per square foot.

14. The roof deck structure of claim 13, wherein:
the adhesive has a viscosity prior to curing of about 200,000 to 300,000 centipoise.
15. The roof deck structure of claim 8, wherein:
the roof substrate comprises fiberglass reinforced gypsum board.
16. A roof deck structure, comprising:
a rigid low slope roof structure including a roof substrate comprising fiberglass reinforced gypsum board;
a waterproof flexible membrane covering said roof substrate;
a moisture curing substantially non-volatile adhesive disposed between the roof substrate and the flexible membrane to thereby bond the flexible membrane to the roof substrate; and wherein:
the roof deck structure includes a layer of foam insulation below the fiberglass reinforced gypsum board.
17. A roof deck structure, comprising:
a rigid low slope roof structure including foam insulation forming a roof substrate;
a waterproof flexible membrane covering said roof substrate;
a moisture curing substantially non-volatile adhesive disposed between the roof substrate and the flexible membrane to thereby bond the flexible membrane to the roof substrate;

a fluted steel deck below the foam insulation; and
moisture curing adhesive bonding the foam insulation to the steel deck without the use of mechanical fasteners.

18. The roof deck structure of claim 17, including:

moisture curing adhesive bonding the foam insulation to the steel deck.

19. The roof deck structure of claim 18, wherein:

the adhesive includes a silyl-terminated polymer.

20. The roof deck structure of claim 18, wherein:

the adhesive includes an oxyalkylene polymer having at least one reactive silyl group at each end of the polymer molecule.

21. A roof deck structure, comprising:

a fluted steel deck having a plurality of elongated upper deck surfaces;

a substantially rigid panel disposed on the steel deck, the panel defining upper and lower surfaces;

moisture-curing adhesive disposed between the steel deck and the substantially rigid panel in contact with the upper deck surfaces and the lower surface of the substantially rigid panel; and

a flexible waterproof membrane disposed above the substantially rigid panel.

22. The roof deck structure of claim 21, wherein:
the substantially rigid panel comprises insulation board.
23. The roof deck structure of claim 22, including:
a layer of fiberglass reinforced gypsum board disposed between the insulation board
and the waterproof membrane.
24. The roof deck structure of claim 23, including:
moisture curing adhesive adhesively securing the fiberglass reinforced gypsum board to
the insulation board.
25. The roof deck structure of claim 23, including:
moisture curing adhesive securing the waterproof membrane to the fiberglass reinforce
gypsum board.
26. The roof deck structure of claim 21, wherein:
the waterproof membrane comprises a fleece-backed material.
27. The roof deck structure of claim 21, wherein:
the waterproof membrane comprises a fleece-backed PVC material.

Evidence Appendix (37 C.F.R. § 41.37(c))

None.

Related Proceedings Appendix (37 C.F.R. § 41.37(c))

None.